APPLICATION UNDER UNITED STATES PATENT LAWS

Invention: **Cigarette Packaging**

Inventors: Michael A. Vink
5 Queen Street
Bolsover, Ontario
K0M 1B0, Canada

Henrikus Vink
20 Liberty Street, South
Bowmanville, Ontario
L1C 2N2, Canada

Manelli Denison & Selter Pllc

2000 M Street, N.W.
Suite 700
Washington, D.C. 20036-3307
Attorneys
Telephone: (202) 261-1014

This is a Regular Utility Application

SPECIFICATION

CIGARETTE PACKAGING

FIELD OF THE INVENTION

This invention relates to packaging of cigarettes, cigars, cigarillos, kreteks, bidis and the like, particularly to said packaging in the form of rolls of dispensing tape

BACKGROUND TO THE INVENTION

With conventional packaging of cigarettes, a predetermined number of cigarettes are wrapped with a sheet of inner packing for water and humidity proof ness and with a sheet of outer paper for correct information on the packed cigarettes and for enhancement of their commercial value. Further, the outer packing is, generally wrapped with a transparent sheet of packing paper.

When a package of cigarettes packed in the above-described conventional packaging manner is opened, an opening is defined through the packaging sheet on the side of the tops of the cigarettes so that the interior of the package is communicated with the surrounding atmosphere. As a result, aroma and natural flavours inherent to the packaged cigarettes tends to be lost; cigarettes are scattered to surrounding atmosphere; cigarettes and the package are deformed.

United States Patent No. 4,920,728 issued May 1, 1990 to K. Shibuya, describes a method wherein a thin sheet with a suitable degree of flexibility is interposed between tips of cigarettes to be packed in a package and the inner surface of a top of the package so that when the portion of the package is opened to define a cigarettes picking up opening, the thin sheet remains in said opening in the form of an inner cover or lid.

However, there still remains a need for providing cigarettes, cigars, cigarillos, kreteks, bidis and the like in packaging which maximizes retention of the flavour and enables each cigarette to stay fresh and dryer longer. Further, a means in which to better protect the cigarettes from becoming broken and crushed is also needed. Yet further, there is a need to prevent counterfeiting of cigarette by designing difficult to reproduce techniques, such as holographic images and encryption, into the package design. Yet still further, it is most desirable to be able to reduce the amount of unhealthy and unnatural moisturizers and humectants, now used as additives and preservatives in the cigarettes, by eliminating the

amount of air exposure to each cigarette in the packaging and loss of moisture from the packaging.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide improved packaging for cigarettes, cigars, cigarillos, kreteks, bidis and the like, which enables the cigarettes to stay fresher and dryer longer by being conveniently individually wrapped and dispensed in such a way as to provide an improved barrier to moisture, light, UV, oxygen, other gases and the like.

It is a further object to provide an improved means of packaging which better protects the cigarettes from becoming damaged, crushed or broken.

It is a further object to provide an improved means of packaging which reduces or eliminates unnatural moisturizing agents, additives, humectants and the like that are currently needed to preserve cigarette freshness and, thus, prolong shelf life.

Accordingly, in one aspect, the invention provides a roll of tape formed of flexible material and having a length and a plurality of sealed, air-tight elongate chambers along said length, wherein each chamber is adapted to retain a cigarette or the like, wherein a selected number of each of said chambers is defined in part by an intercavity portion.

In this specification and claims, the term "cigarette" includes cigarettes, cigars, cigarillos, kreteks, bidis and the like.

The flexible material may, preferably, be a polymeric plastics material or metallic material, such as, for example, aluminum, silver or gold in the form of a foil.

Preferably, the roll of tape comprises a pair of complementary longitudinal barrier films formed of a flexible material, bonded one to the other as to define a plurality of sealed, air tight chambers along said length of the tape wherein each chamber is adapted to retain cigarette or the like between said barrier films.

The chambers are termed herein "blister" chambers.

The tape preferably has each of said interchamber portions having a plurality of perforations perpendicular to said length of said length of tape to operably constitute tear off means to separate one chamber from the other.

It also preferably has each blister chamber defined in part by an edge portion of said tape of sufficient finger gripping area as to operably constitute means to provide access to said cigarette in said blister chamber. The access to a cigarette in the chamber may

constitute, for example, of a push-through, peelable, child resistant peel-push, tear open or peel-open means.

Further, the tape preferably has each of said interchamber portions further comprising weakened flanking portions parallel to and either side of said blister chamber to operably comprise said tear open means.

More, preferably, the tape constitutes a thermoformable film of a single, extruded, barrier coated or laminated polymeric material, such as selected from the group consisting of, for example, PVC, PVC/PVdC, PVC/Aclar, COC0, PP, PP-COC-PP, PETG, APET, PET and polyethylene, sealed to a complementary film, as formed of, for example, metal, paper, polymer, or combination thereof. Similarly, the tape may constitute a cold formable, metallic, metallic-polymer material, or its like known to industry, sealed to a complementary film such as metal, paper, polymer, or combination thereof.

More, preferably, the tape comprises a film of a plastics material such as, polyethylene, laminated to a complementary full length or discrete individual portions of film of a metallic foil, such as a silver or aluminum foil.

Most preferably, the films are formed of air-tight materials to maintain the chambers moisture and air-proof and also to prevent drying out of the tobacco.

The term "roll" herein includes an open or closed strip or the like.

In a further feature, the packaging according to the invention may comprise features such as anti-counterfeiting means, such as, for example, holographic images and encryption and its like known to industry, manufactured into the blister forming process to ensure originality of products.

In a further aspect, the invention comprises a method of manufacturing cigarette packaging as hereinabove defined.

In a further aspect, the invention provides a roll of tape as hereinabove defined wherein either of said films have illumination properties or its like known to industry, which allow for tape and/or chambers to be easily identified in less than ideal lighting situations.

In a yet further aspect, the invention provides a cigarette dispensing assembly comprising, in combination, a dispenser and a roll of cigarette-containing tape, as hereinabove defined, wherein said dispenser comprises

(a) a housing defining a chamber and constructed and adapted to receive said roll of tape and having lockable tape entry means by which said roll enters said housing and

longitudinal aperture exit means through which said tape is controllably, operably dispensed from said housing in single cigarette-containing chamber array, one after another,

(b) dispensation controlling means within said housing to operably control dispension of a desired length portion of tape through said exit means; and

(c) means operably cooperable with said dispensation controlling means to effect operation of said dispensation controlling means.

The assembly as hereinabove defined in one embodiment further comprises control cam means for preventing unwanted rearward movement of said tape within said housing beyond a cigarette width.

The control cam means preferably comprises

(i) a pivotable cam mounted within said housing chamber;

(ii) an interchamber portion engaging cooperable with said pivotable cam member; and

(iii) a stop member cooperable with said cam to prevent said rearward movement of said tape of said cam.

In further embodiments, the invention provides an assembly wherein said housing has a first wall, a second wall, a lockable and removable third wall, a fourth wall, a fifth wall and a sixth wall, which define a chamber for receiving said tape; wherein

(i) said first wall, said second wall, said fifth and said sixth walls define a tape-entry aperture through which said tape is located within said chamber and which aperture operably receives said removable third wall;

(ii) said first wall has a portion defining an elongate aperture parallel to and adjacent said sixth wall, which elongate aperture constitutes said longitudinal aperture exit means; and

(iii) said dispensation means comprises (a) a longitudinal member parallel to and in abutment with said tape within said interchamber portion of said tape; (b) cam means cooperable with said longitudinal member to allow said longitudinal movement of said tape through said elongate aperture; and (c) wherein said control means comprises handle means cooperable with said cam means to operably effect dispersion of said tape through said elongate aperture.

In yet further embodiments, the invention provides an assembly wherein said housing has a front side wall, a rear side wall, a lockable and removable side wall, a fourth side wall, a top and a bottom, which define a chamber for receiving said tape; wherein

(i) said front side wall, said rear side wall, said top and said bottom define a tape-entry aperture through which said tape is located within said chamber and which aperture operably receives said removable side wall;

(ii) said front side wall has a portion defining an elongate aperture parallel to and adjacent said base, which elongate aperture constitutes said longitudinal aperture exit means; and

(iii) said dispensation means comprises (a) a longitudinal member parallel to and in abutment with said tape within said interchamber portion of said tape; (b) cam means cooperable with said longitudinal member to allow said longitudinal movement of said tape through said elongate aperture; and (c) wherein said control means comprises handle means cooperable with said cam means to operably effect dispersion of said tape through said elongate aperture, and preferably further comprising an assembly comprising lockable stop means cooperable with said handle means to prevent unwanted movement of said handle means, and more preferably further comprising an assembly comprising

(i) a pair of elongate guides fixed to said fourth side wall parallel one to another at a distance thereof and defining a guide passage therebetween;

(ii) an intervening elongate guide member movable longitudinally within said guide passage; and cooperable with said handle and said cam means whereby movement of said handle effects longitudinal movement of said guide member to effect longitudinal movement of said elongate member either forwardly with said tape or rearwardly over said tape; and

(iii) wherein said stop member is rigidly connected to said guide or said fourth side wall.

In alternative embodiments, the dispenser may be wall-mountable and retain the roll of cigarette-containing tape as a spool on a spindle at the top and is fed downwardly to the dispensing aperture and out therethrough under the control of a cog mechanism operable in only a single rotary direction under the control of a lockable dispensation mechanism, manually activated upon coin or like insertion control means.

BRIEF DESCRIPTION OF THE DRAWINGS

In order that the invention may be better understood, a preferred embodiment will now be described by way of example only, with reference to the drawing, wherein

FIG 1. is a perspective view of a roll of tape packaging for cigarettes, according to the invention, comprising a pair of laminated barrier films;

FIG. 2. is a diagrammatic plan view of a portion of a tape packaging for cigarettes, according to the invention, comprising a pair of barrier films laminated together;

FIGS. 3A and 3B are diagrammatic longitudinal side views of a six pack portion of a tape according to the invention, in a sealed and prior-to-sealing arrangement, respectively;

FIG. 4. is a view of a portion of tape packaging for cigarettes according to the invention, in a folded over arrangement;

FIGS. 5A and 5B are diagrammatic perspective views of an assembly and associated removable side wall, respectively, according to the invention;

FIG. 6 is a diagrammatic longitudinal side view of an open housing of an assembly according to the invention;

FIG. 7 is a diagrammatic, dispensing aperture side view of the housing of the assembly as shown in FIG. 6;

FIG. 8 is a diagrammatic top view of the housing as shown in FIG. 6; and wherein the same numerals denote like parts.

DEATAILED DESCRIPTION OF PREFERRED EMODIMENTS

With reference to FIGS. 1-4, these show generally as 10 a roll of tape formed of a complementary pair of films 12, 14 formed of a flexible material and having a length and a plurality of sealed, air-tight chambers along its length, wherein each chamber is adapted to retain a cigarette or the like and wherein a selected number of each of the chambers is defined in part by an interchamber portion 26, bonded by lamination one to the other at each side and edge portions 16, 18, respectively, to define a plurality of sealed, air tight chambers 20 along the length of tape 22. Each chamber 20 holds an individual cigarette 24. Between each chamber 20, interchamber portion 26 has a plurality of perforations or serrations 28 perpendicular to length 22 of tape 10, by which each segment of tape 10 holding cigarette 24 may be separated from its adjacent neighbour.

One side of tape 10 is provided with a plurality of tinfoil tabs 30, one per chamber 10 of sufficient finger gripping area as to enable tabs 30 to be pulled upwardly and outwardly to operably constitute tear-open means to give access to a cigarette retained in chamber 10.

Also, along the flanking portions 16 of each chamber, the bonding of the plastic films 12, 14 are weakened to enable ease of separation by the action of pull-tabs 30.

The tape 10 may be made by lamination of suitably shaped films 12, 14 by methods known in the art.

In an alternative embodiment of roll 10, shown in Fig. 3 generally as 100, a single film of a plastics material 102 is laminated to an intermittent plurality of tin foil strip portions 104 to define a plurality of chambers 106, each of which holds a cigarette 24 as analogously hereinabove described. Roll 10 similarly has the desired perforations and tabs to enable pull-off removal of tin foil tab 30 to release a cigarette 24.

FIG. 4 shows a plurality of tape strips, generally as 202, 204, 206, according to the invention, alternatively packaged in a flat, folded-over, even manner rather than in a roll and provides improved minimal thickness and, preferably, enables e.g. 20-25 cigarettes-containing strips to be fitted into a cardboard sleeve; shown in dashed outline 108.

FIG. 5A shows generally as 300, a housing 302 having vertical side walls 304, 306 and 308, with a fourth removal side wall 310, base 312 and top 314. The side walls, top and bottom define a roll of cigarette tape 316 receiving box chamber 318. Removable side wall 310 (FIG. 5B) is lockable to housing 302 by lock and key mechanism 320 which cooperates with housing vertical protrusion 322.

Front side wall 308 has an elongate aperture 324 parallel and adjacent to base 312 of such dimensions as to allow the close passage of tape 316, therethrough when received, essentially in so close proximity to the sides of aperture 324 as to prevent unwanted manipulation of tape 316.

Affixed to side wall 306 is a pair of longitudinal steel guide bars 326, 328, parallel one to the other essentially the length of wall 306, but distant one from the other. Between guide bars 326, 328 is a shorter steel bar 330 horizontally moveable between bars 326, 328. Welded to front end 332 of bar 330 is a vertical steel bar 334.

Housing top 314 has a longitudinal aperture 338, running between side rear wall 304 and front side wall 308 at its front half 336 adjacent side wall 308 at its front half 336 adjacent side wall 308. Vertical bar 334 has an upper handle portion 340 which protrudes through aperture 338, and a lower portion 342 to which is pivotally retained by bolt 345 a cam member 344 consisting of a steel arm 346 pivotal on bolt 345 in a vertical plane and a cigarette-abutting metal rod 348, integral with and perpendicular to arm 346 as to constitute a tape or cigarette chamber abutting member. Bar 330, at its front end 348, has an integrally-formed planar protruding stop 350, so engageable with planar locking member 352 of locking member 354 that rearward movement of bar 330 is prevented unless planar member 352 is turned out of abutment with stop 350, by means of key 356.

Fixed midway of horizontal lower bar 328 is a similar cam arrangement consisting of vertical bar 358, cam member 360, which is pivotally retained by bolt 362 on bar 358 and to which is integrally-formed cigarette/tape 316 abutting rod 364 perpendicular to bar 360. Forward and upward movement of rod 364 is effected by forward movement of cigarette/tape 316 when the latter is operably pulled through aperture 324 when desired. Thus, rod 364 rolls over each cigarette and falls back onto the tape at each inter-cigarette chamber location 26, in turn.

Bar 358 has a metal stop 366, outstanding perpendicularly from bar 358, which stop abuts cam member 360 when the latter is in a vertical position as to prevent rearward movement of rod 364 beyond stop 366's vertical position and, thus, prevents rearward movement of tape 316 within housing 302.

Thus, in operation, a roll of tape 316 is loaded into box chamber 318 when housing 302 is open when side wall 310 is absent, and a length of tape 316 is opened and spread out along base 312 under rods 344 and 360, as far as aperture 324. Side wall 310 is affixed and housing 302 locked by key 320. No part of tape 316 protrudes through aperture 324. Handle 340 is locked in place by locking member 352.

To dispense cigarette/tape 316 through aperture 324, locking member 352 is turned by key 356 to release handle 340. Handle 340 is pushed rearwardly along aperture 338 to a desired distance commensurate with the number of cigarettes to be dispensed in that operation as desired. In this action rod 348 rides over the desired number of cigarettes. Tape 316 cannot move rearwardly because of engagement of rod 364 in an inter-cigarette chamber portion 368 with the adjacent forward cigarette because of fixed stop 366 acting on cam member 360.

Forward movement of handle 340 causes tape 316 to pass through aperture 324 by the abutment of rod 348 with the cigarette forward thereof and the "pushing" of the cigarette in a forward movement. Once handle 340 has reached the forward end of aperture 338, the operation can be repeated or handle 340 locked through activation of member 352 by rotary movement of key 356.

Although this disclosure has described and illustrated certain preferred embodiments of the invention, it is to be understood that the invention is not restricted to those particular embodiments. Rather, the invention includes all embodiments, which are functional or mechanical equivalence of the specific embodiments and features that have been described and illustrated.